

INDEX TO VOLUME NINE

TITLE INDEX

A

A.C. ratio boxes	52
Accelerometers	598
—, ceramic element	294
Accounting system, electronic	473
—, N.C.R. 395	596
Actuator, electro-pneumatic	602
—, Steromotor	238
—, valve	238, 410, 411
Adaptive process optimizer	253
Aerosol photometers	239
Aerospace, control action display	517
Agriculture, automation in	247
Aircraft, check-out equipment	644
—, head-up and director systems	523
—, seat reservation, real-time	511
—, servo-actuators for	97
—, simulator systems	513
Air traffic-control system, Satco	45
Alarm analysis at Oldbury power station	539
Alarm modules	653
—, scanners	115
—, voltage and frequency	652
Ammeter, low-current	601
Amplifiers	102, 175, 176, 235, 295, 347, 526, 553, 557, 658, 661
—, d.c.	176, 657, 658
—, operational	176, 347, 657, 658
—, servo	175, 176, 406, 407, 528, 599, 655
Analysers, distortion	489
—, hydrocarbon	603
—, low frequency	51, 52
—, process	603
—, spectrum	486
—, wave	489
Analytical method, appraisal of servo-system	432, 506
Anemometer	101
Angle counters	172, 473
Animal movement monitor	350
Annunciator, alarm	471
Army communications	392
Automobile air conditioner	47

B

B.A.C., aircraft simulator	513
B.O.A.C. computer	523
Baking industry, automation in the	391
Baking Research Association	391
Ball-valve switching controls a machine tool	150
Bevercoles colliery and the future of coal-mining	453
—, Continental contemporaries of	456
Billet cutting control	167
Billet-handling crane, automatically controlled	187
Boiler, automatic start-up of coal-fired	41
Boiler-turbine units in C.E.G.B. power stations, instrumentation and control of modern	381, 442, 500, 570, 690
Book reviews—by authors' names	
Altman, Jerome L. <i>Microwave circuits</i>	476
American Society for Testing and Materials <i>Techniques of electron microscopy, diffraction and microprobe analysis</i>	696
Anderson, Norman A. <i>Instrumentation for process measurement and control</i>	414
Arrowsmith, J. R. (see Puckle)	
Bagrit, Sir Leon <i>The age of automation</i>	241
Barlow, Derek H. (see Broide)	
Basher J. C. <i>The Flit 1 conversion code</i>	181
—, <i>The Flit conversion codes</i>	696
Bennett, Edward, James Degen and Joseph Spiegel <i>Military information systems</i>	96
Berners-Lee, C. M. (ed.) <i>Models for decision</i>	577
Black G. <i>Discount D. An improved version of the computer program for economic assessment of nuclear power systems</i>	476
Blackman, R. B. <i>Linear data-smoothing and prediction in theory and practice</i>	577
Booth, A. D. <i>Digital computers in action</i>	355
British Standards Institution B.S. 1042: Part 1: 1965. <i>Methods for the measurement of fluid flow in pipes. Part 1: Orifice plates, nozzles and Venturi tubes</i>	96
—, B.S. 1042: Part 3: 1965. <i>Methods for the measurement of fluid flow in pipes. Part 3. Guide to the effects of departure from the methods in Part 1</i>	242
—, B.S. 1904: 1964. <i>Specification for industrial platinum resistance thermometer elements</i>	120
—, B.S. 3680: Part 3: 1964. <i>Methods of measurement of liquid flow in open channels. Part 3. Velocity area methods</i>	242
—, B.S. 3792: 1964. <i>Recommendations for the installation of automatic liquid level and temperature measuring instruments on storage tanks</i>	96

—, I.E.C. Publication 117. Part 4: Recommended graphical symbols for measuring instruments and electric clocks	120
British Valve Manufacturers' Association <i>Valves for the control of fluids</i>	96
Broida, Victor, Derek H. Barlow and Otto Schäfer (ed.) <i>Automatic and remote control: Vol. 1—Theory; Vol. 2—Applications and components</i>	356
Brown, Basil and John E. Goodman <i>High-intensity ultrasonics—Industrial applications</i>	356
Buckley, Page S. <i>Techniques of process control</i>	298
Buckley, Ruth V. <i>A guide to advanced electrical engineering</i>	95
Burnett-Hall, D. G., L.A.G. Dresel and P. A. Samet <i>Computer programming and auto-codes</i>	119
Butusov, I. V. <i>Automatic control measuring and regulating devices translation edited by R. C. Glass</i>	413
Buzzell, Robert D. <i>Mathematical models and marketing management</i>	182
Cairo, L. and T. Kahan <i>Variational techniques in electromagnetism</i>	697
Chow, Woo F. <i>Principles of tunnel diode circuits</i>	49
Clausen, Hugh <i>Engineering research development and design</i>	414
Colcutt, R. H. <i>The first twenty years' operational research</i>	578
Conslidine, D. M. and S. D. Ross (ed.) <i>Handbook of applied instrumentation</i>	49
Cooke-Yarborough, E.H. <i>Content-addressable stores</i>	49
—, and I. N. Hooton <i>Associative storage by adaptation of a standard pulse analyser</i>	49
Degan, James (see Bennett)	
Deighton, M. O. <i>A non-feedback amplifier system yielding high gain stability</i>	241
Dorn, William S. (see McCracken)	
Dosse, Joachim <i>The transistor</i>	298
Dresel L. A. G. (see Burnett-Hall)	
Fan, Lian-Tseng and Chiu-Sen Wang <i>The discrete maximum principle</i>	95
Formby, John <i>An introduction to the mathematical formulation of self-organizing systems</i>	180
Fowler, E. P. <i>Direct coupled amplifiers using field effect transistors</i>	638
Freeman, Herbert <i>Discrete-time systems</i>	577
Gawartowski, James W. and Hugh A. Watson <i>Principles of electron tubes</i>	578
Glicksman M. (see Nergaard)	
Goodman, John E. (see Brown)	
Goodman, Richard <i>Annual review in automatic programming, vol. 4</i>	119
Gordy H. M. (see Myers)	
Guppy, C. B. <i>On the relationship between the transfer functions and the characteristic modes of a set of ordinary first order differential equations</i>	179
Guthrie, D. G. <i>A gas blender for minor components at concentrations between 10 and 1000 v.p.m.</i>	476
Guttman, I. and S. S. Wilks <i>Introductory engineering statistics</i>	697
Harris, L. Dale <i>Numerical methods using Fortran</i>	241
Harvard Business School Accounting Round Table <i>The measurement of property, plant and equipment in financial statements</i>	182
Haviland, R. P. <i>Engineering reliability and long life design</i>	96
Hayashi, Chihoro <i>Non-linear oscillations in physical systems</i>	179
Higgins, T. H. (see Macmillan)	
Higginson, M. <i>Valliant Managing with e.d.p.</i>	696
Hogg, J. F. <i>A binary cross-correlation analyser</i>	119
Hooton, I. N. (see Cooke-Yarborough)	
Ifac <i>Hazard and race phenomena in switching circuits</i>	297
Ignat'yev M. B. <i>Holonomic automatic systems</i>	120
Institution of Electrical Engineers <i>Abnormal loads on power systems</i>	119
Institution of Mechanical Engineers <i>Automatic railway convention, 1964</i>	697
—, <i>Proceedings of the discussion on stability of systems</i>	696
International Labour Office <i>Labour and automation. Bulletin No. 1</i>	241
Kahan, T. (see Cairo)	
Kamenik, V. (ed.) <i>Chisa 1962. Main lectures of First International Congress on Chemical Engineering. Equipment Design and Automation</i>	241
Kovach, Ladis D. <i>Computer-oriented mathematics</i>	49
Krug, G. K. and Ya. K. Krug <i>Electrical correcting elements in automatic control and regulation circuits</i>	577

Larach, Simon (ed.) <i>Photoelectric materials and devices</i>	697
Lindorff, David P. <i>Theory of sampled-data control systems</i>	476
Locks Anderson, W. H. <i>Corporate finance and fixed investment</i>	181
Lyall, E. (see Moulton)	
McCaillen, C. W. J. <i>Demon. A computer program</i>	696
McCracken, Daniel D. and William S. Dorn <i>Numerical methods and Fortran programming</i>	181
MacFarlane, A. G. J. <i>Engineering systems analysis</i>	180
Macmillan, R. H., T. J. Higgins and P. Naslin (ed.) <i>Progress in control engineering Vol. 2</i>	49
Martin, R. A. <i>A lumped constant delay line with negligible overshoot</i>	476
Martino, R. L. <i>Project management and control: Volume II Applied operational planning</i>	182
Miles, V. C. <i>Thermostatic control</i>	578
Miller, Raymond E. <i>Switching theory. Volume 1: Combinational circuits</i>	578
Moulton, R. J. and E. Lyall <i>Design of an adiabatic control for a graphite channel oxidation rate experiment</i>	49
Mueller George E. and Eugene R. Spangler <i>Communication satellites</i>	95
Myers, Richard M., Kam L. Wong and H. M. Gordy (edited by) <i>Reliability engineering for electronic systems</i>	120
Naslin, P. <i>Circuits logiques et automatismes a sequences</i>	355
Naslin, P. (see also Macmillan)	
National Economic Development Council, <i>Investment appraisal</i>	182
Nergaard L. S. and M. Glicksman <i>Microwave solid-state engineering</i>	119
Neve, R. S. <i>Fluid jet amplifiers</i>	638
Newman, David Bruce <i>Space vehicle electronics</i>	180
Newson, P. A. <i>Tables for the binary encoding of angles</i>	696
Nixon R. A. <i>Problems of pump head measurement (N.E.L. Report No. 113)</i>	119
Peechon, John (ed.) <i>Disciplines and techniques of systems control</i>	180
Pilling B.F. <i>Thermocouples: their instrumentation, selection and use</i>	119
Plumb, S. C. <i>Introduction to Fortran</i>	181
Polonnikov, D. Ya. <i>Electronic amplifiers for automatic compensators</i>	241
Puckle, O. S. and J. R. Arrowsmith <i>Numerical control, an introduction to numerical control of machine tools</i>	180
Pyle, I. C. <i>Proposed specification of a computing system using remote control: HUW</i>	696
Ramplung, M. W. <i>Calibration of the Daphne course-control arms</i>	697
Reeves C. M. and M. Weale <i>A course on programming in Algol 60</i>	119
Rice, John R. <i>The approximation of functions. Volume 1—linear theory</i>	413
Ross, S. D. (see Conslidine)	
Samet P. A. (see Burnett-Hall)	
Saul'yev, V. K. <i>Integration of equations of parabolic type by the method of nets translated by G. J. Tee</i>	179
Schäfer, Otto (see Broide)	
Schneider, Lewis M. <i>Marketing urban mass transit</i>	414
Scott, Brian W. <i>Long-range planning in American industry</i>	697
Sharp, John R. <i>Some fundamentals of information retrieval</i>	297
Shileiko, A. V. <i>Digital differential analysers</i>	49
Slater, J. M. <i>Inertial guidance sensors</i>	297
Society of Instrument Technology <i>Careers with instruments</i>	698
Spangler, Eugene P. (see Mueller)	
Spiegel, Joseph (see Bennett)	
Stanton, William A. <i>Pulse technology</i>	95
Starkmann, Rudolf <i>The treatment of linear multivariable regulation systems by means of determinants on the basis of the generalized block diagram</i>	119
Taylor, F. J. D. <i>The Goonhilly project</i>	298
Tischer, Frederick J. <i>Basic theory of space communications</i>	577
Tomovic, Rajko <i>Sensitivity analysis of dynamic systems</i>	95
Tou, Julius T. <i>Modern control theory</i>	95
Trollhann L. and A. Wittmann <i>Dictionary of data processing</i>	120
U.K.A.C. <i>Record No. 4, February, 1965. Education and training needs for progress in automation and technology</i>	413

U.K.A.C. Record No. 5, February 1965.
Investigation concerning technicians associated
with automated processes 414
Ulanov, G. M. Excitation control 242

Wang, Chiu-Sen (see Fan)
Ward, T. B. Management services: the way
ahead 242
Watson, Hugh A. (see Gewertowski)
Webster, Eric How to win the business battle 96
Weele, M. (see Reeves)
Weiss, Alexander von Matrix analysis for
electrical engineers 96
Wilks, S. S. (see Guttman)
Williams, D. A method of gain sweeping for
single channel pulse-amplitude analysis 696
Williams, T. G. (ed.) Instruments electronics
automation year book and buyers guide 241
Wittman, A. (see Trollhann)
Wong, Kam L. (see Myers)

Book reviews—by titles

A binary cross-correlation analyser by J. F.
Hogg 119
A course on programming in Algol 60 by
C. M. Reeves and M. Weale 119
A gas blender for minor components at
concentrations between 10 and 1000 v.p.m.
by D. G. Guthrie 476
A lumped constant delay line with negligible
overshoot by R. Martin 476
A method of gain sweeping for single channel
pulse-amplitude analysis by D. Williams 696
A non-feedback amplifier system yielding
high gain stability by M. O. Deighton 241
Abnormal loads on power systems (I.E.E.
conference report series No. 8) 119
An introduction to numerical control of
machine tools by O. S. Fuckle and J. R.
Kroonveth 180
An introduction to the mathematical formu-
lation of self-organizing systems by John
Formby 180
Annual review in automatic programming
vol. 4 edited by Richard Goodman 119
Associative storage by adaptation of a stan-
dard pulse analyser by E. H. Cooke-
Yarborough and I. N. Hooton 49
Automatic and remote control: Vol. 1—
Theory; Vol. 2—Applications and Compo-
nents edited by Victor Broida, Derek H. Bar-
low and Otto Schäfer 358
Automatic control measuring and regulating
devices by I. V. Butusov translation edited
by R. C. Glass 413
Automatic railway convention, 1964 Institution
of Mechanical Engineers 697
Basic electronic circuits, Part 2 by a training
investigation team R.E.M.E. 96
Basic theory of space communications by
Frederick J. Tischer 577
British instruments directory and data hand-
book 414

Calibration of the Daphne coarse-control
arms by M. W. Rampling 697
Careers with instruments Society of Instrument
Technology 698
Chase 1962. Main lectures of First Inter-
national Congress on Chemical Engineering,
Equipment Design and Automation edited
by V. Kamenik 241
Circuits logiques et automatismes a sequences
by P. Naslin 355
Communication satellites by George E.
Mueller and Eugene R. Spangler 96
Computer-oriented mathematics by Ladis D.
Kovach 49
Computer programming and autcodes by
D. G. Burnett-Hall, L. A. G. Dresel and P. A.
Samet 119
Content-addressable stores by E. H. Cooke-
Yarborough 49
Corporate finance and fixed investment by
W. H. Locke Anderson 181
Demon. A computer program which solves
certain time-dependent equations by
C. W. J. McCallien 696
Design of an adiabatic control for a graphite
channel oxidation rate experiment by
R. J. Moulton and E. Lyell 49
Dictionary of data processing by L. Trollhann
and A. Wittmann 120
Digital computers in action by A. D. Booth 355
Digital differential analysers by A. V. Shileiko 49
Direct coupled amplifiers using field effect
transistors by E. P. Fowler 638
Disciplines and techniques of systems control
edited by John Peachon 180
Discount D. An improved version of the
computer program for economic assess-
ment of nuclear power systems by G. Bleck 476
Discrete-time systems by Herbert Freeman 577
Electrical correcting elements in automatic
control and regulation circuits by G. K. Krug
and Ye. K. Krug 577
Electronic amplifiers for automatic compen-
sators by D. Ye. Polonnikov translated by
Rita R. Ineson 241

Engineering reliability and long life design by
R. P. Haviland 96
Engineering research development and
design by Hugh Clausen 414
Engineering systems analysis by A. G. J.
MacFarlane 180
Eurolec 1965 pocket guide to the electronics
and instrument industry in the U.K. 697
Excitation control by G. M. Ulanov 242
Fluid jet amplifiers by R. S. Neve 638
Guide to advanced electrical engineering by
Ruth V. Buckley 96
Handbook of applied instrumentation edited
by D. M. Considine and S. D. Ross 49
Hazard and race phenomena in switching
circuits Ifac 297
High-intensity ultrasonics—industrial applica-
tion by Basil Brown and John E. Goodman 356
Holonomic automatic systems by M. B. Ignat'-
yev 120
How to win the business battle by Eric Webster 96
Inertial guidance sensors by J. M. Slater 297
Instrumentation for process measurement
and control by Norman A. Anderson 414
Instruments electronics automation year book
and buyers guide edited by T. G. Williams 241
Integration of equations of parabolic type by
the method of nets by V. K. Saul'yev trans-
lated by G. J. Tee 179
Introduction to Fortran by S. C. Plumb 181
Introductory engineering statistics by Irwin
Guttman and S. S. Wilks 697
Investment appraisal by National Economic
Development Council 182
Labour and automation. Bulletin No. 1. Auto-
mation: a discussion of research method
International Labour Office 241
Linear data-smoothing and prediction in
theory and practice by R. B. Blackman 577
Long-range planning in American industry by
Brian W. Scott 697
Management and its people American
Management Association 638
Management services: the way ahead by
T. B. Ward 242
Managing with e.d.p. by M. Valliant Higginson 698
Marketing urban mass transit by Lewis M.
Schneider 414
Mathematical models and marketing manage-
ment by Robert D. Buzzell 182
Matrix analysis for electrical engineers by
Alexander von Weiss translated by Egon
Brenner 96
Microwave circuits by Jerome L. Altman 476
Microwave solid-state engineering edited by
L. S. Nergaard and M. Glickman 119
Military information systems edited by
Edward Bennett, James Degan and Joseph
Spiegel 96
Models for decision edited by C. M. Berners-
Lee 577
Modern control theory by Julius T. Tou 95
Non-linear oscillations in physical systems by
Chihiro Hayashi 179
Numerical methods and Fortran program-
ming by Daniel D. McCracken and William
S. Dorn 181
Numerical methods using Fortran by L. Dale
Harris 241
On the relationship between the transfer
functions and the characteristic modes of a
set of ordinary first order differential
equations by C. B. Guppy 179
Photo-electric materials and devices edited
by Simon Larch 697
Principles of electron tubes by James W.
Gewertowski and Hugh A. Watson 578
Principles of tunnel diode circuits by Woo F.
Chow 49
Problems of pump head measurement. N.E.L.
Report No. 113 by R. A. Nixon 119
Proceedings of the discussion on stability of
systems Institution of Mechanical Engineers
Programming in Algol by the Mathematics
Laboratory, Royal Radar Establishment 181
Progress in control engineering, Vol. 2 edited
by R. H. Macmillan, T. J. Higgins and
P. Naslin 49
Project management and control: Volume II:
Applied operational planning by R. L.
Martino 182
Proposed specification of a computing system
using remote control: HUW by I. C. Pyle 696
Pulse technology by William A. Stanton 96
Reliability engineering for electronic systems
edited by Richard M. Myers, Kam L. Wong
and H. M. Gordy 120
Second report of the Committee on common
standards for electronic parts 638
Sensitivity analysis of dynamic systems by
Rajko Tomovic translated by David Tom-
quist 95
Some fundamentals of information retrieval
by John R. Sharp 297
Space vehicle electronics by David Bruce
Newman 180

Switching theory, Volume 1: Combinational
circuits by Raymond E. Miller 578
Tables for the binary encoding of angles by
P. A. Newson 698
Techniques of electron microscopy, diffraction
and microprobe analysis American Society
for Testing and Materials 696
Techniques of process control by Page S.
Buckley 298
The age of automation by Sir Leon Unguit 241
The approximation of functions. Volume 1—
Linear theory by John R. Rice 413
The discrete maximum principle by Liang-
Tseng Fan and Chiu-Sen Wang 95
The first twenty years' operational research by
R. H. Colcutt 578
The Flic 1 conversion code by J. C. Basher 181
The Flic conversion codes by J. C. Basher 696
The Goonhilly project by F. J. D. Taylor 298
The measurement of property, plant and
equipment in financial statements Harvard
Business School Accounting Round Table 182
The transistor by Joachim Dose 298
The treatment of linear multivariable regulation
systems by means of determinants on the
basis of the generalized block diagram by
Rudolf Starkermann 119
Theory of sampled-data control systems by
David P. Lindorff 476
Thermocouples: their instrumentation, selection
and use by B. F. Pilling 119
Thermostatic control by V. C. Miles 578
Units and standards of measurement employed
at the National Physical Laboratory. II
Light: photometry, colorimetry and radio-
metry 95
Valves for the control of fluids British Valve
Manufacturers' Association 96
Variational techniques in electromagnetism by
L. Cairo and T. Kahan 697

B

Bridge, 489, 600
British Automation Conference 583, 641
British Hydromechanics Research Associa-
tion, fluid logic conference 588
British Rail modernization 450
Brushless adjustable-speed drives 367
Business efficiency exhibition, review 647

C

C.E.G.B., Myriad computer for 524
—, Oldbury 539
—, power stations, instrumentation and
control of modern boiler-turbine units in 361, 442,
500, 570, 690
—, Trawsfynydd 159
—, West Thurrock 41
C.E.I. 477
Calculator, electronic, desk 112
Cantor Lectures, Royal Society of Arts 268
Capacitance bridge, automatic 50
Car-washing system, automatic 91
Carbon analyser 654
Card readers 474, 659, 660
Central processor, NCR 4130 531
Chart writer, deflected ink-jet 339
Check-out for aircraft 644
Chemical plant design, analogue computers
for 279
Chemical process, optimization study 477
Chobham navigator 237
Chromatograph 51, 240, 533
Clocks, digital 176, 660, 661
Coal on the move, unloading 594
Coal mining, instrumentation and control in 16
Coal-mining, Bevercotes colliery and the
future of 453
Cold-cathode tube 178
Communication, integrative 334
Commutator and synchronous speed control,
d.c. motor with s.c.r. 497
Compagnie Européenne d'Automatisme Elec-
tronique (C.A.E.) 394
Compressor run-up characteristics rescued,
large centrifugal 488
Computers, Arch 9000B 171
—, Argus 400 473, 644
—, Argus 500 582, 646, 659
—, Comet (Met. Office) 642
—, Compatibles /100 267
—, D84 296
—, E.A.L. hybrids 595
—, E.A.L. 8800 111
—, E.A.L. 8400 111
—, E.E.L.M. system 4 581, 696
—, Elliott 920 63
—, Gamma 115 287
—, Honeywell Alart 596
—, Honeywell 20 109
—, I.B.M. System 360 109
—, I.B.M. 360/44 595
—, I.B.M. 1130 111, 644
—, I.C.T. 1900 650
—, I.C.T. 1901 595
—, microelectronic 523

—, Myriad	524
—, N.C.R. 396-300	473
—, N.C.R. 500	109, 287
—, N.C.R.-Elliott 4100 series	110
—, PDP 8	288
—, Univac 490	474
—, Univac 1107	111
—, analogue solution of the Ekelund spread equation	66
—, analogue study of continuous-time Markov processes	205
—, control, U.S. manufacturers reassess	460
—, digital	581
—, joint project for a large digital	480
—, market second-hand	392
—, on-line optimization with an analogue	85
—, program centre, national	220
—, round-table conference. How much less are computers doing than they could?	141
—, training kit	104
Computing course	104
Conductivity cell, high-pressure	50
Connector, miniature for thermocouples	102, 173
Controllers, direct digital	171
—, heating	471
—, liquid level	526
—, photo-electric	561
—, p.i.d.	115
—, sequence	652, 653
—, set point	653
—, shaft speed	116
—, solid-state	652
—, speed	526
—, temperature	471, 652, 653
Converter, analogue/digital	531
—, card-tape	474
—, digital-to-analogue	346
—, digital code	346
—, electromechanical	172
—, gas-filled triode	347
—, Hall-effect	236
—, logarithmic	532
—, tape-to-tape	474
Coolers for power stations, sampling	50
Core-store, coincident-current	531
Council of Engineering Institutions	477
Counter	177, 293, 352, 465, 600, 661
—, batch	346, 352, 660
—, decade	352, 465
—, pneumatically-controlled	177
—, probe for digital	466
Crane, automatically controlled billet-handling	187
—, communications system for control applications	608, 683
Cranfield, fluid logic conference at	588
Critical path analysis, I.E.E. colloquium	336
Cryogenic calibration	405
Current meter	51
Cybernetics, control and information theory	428

D

D.S.I.R. (see also Science Research Council)	279
Data-acquisition, I.B.M. 1800	110
Data and speech transmission	475
Data-logging system	290
Data sheets	
—, New methods for the numerical solution of equations by D. T. Broadbent (Data sheet 33)	75
—, Two test frequencies give the transfer function of a third-order system by W. F. Lovering (Data sheet 34)	267
—, Selection and sizing of liquid flow control valves by normalized working characteristics by G. Brown (Data sheet 35)	558
Data storage device, random access	289
Data transmission system	112
Delay lines, module for	478
Density gauges, gas and liquid (Survey 42)	26
Density unit, gradient	472
Density warning device	117
Detectors, silicon	294
—, surface-barrier semiconductor	174
Diesel-electric locomotive power system	515
Digital circuit modules	476
Digital control, direct	277
Digital controller, direct	171
Digital readout, time-of-flight clock with	314
Digital tape transport	113
Digital trainer	658
Digitizers	172, 352
Diodes for magnetometers	597
Direct digital controller, a new	133
Direct digital control, an introduction to	127
—, computers and	125
—, output and standby equipment for	137
—, S.I.T. symposium on	331
Disk store	289
Dispenser for liquids, automatic	50
Displacement transducers	597, 598
—, ancillaries	473
Display, computer	290
—, digital	525
—, illuminated	525
—, miniature digital	603
—, moving tape	525
—, scanner for	525

—, training	103
Dissolved-oxygen meter	51, 654
Distillation columns, control of continuous	21
Divider unit, decade	600
Document recorder, computer	474
Document sorter, electronic	289
Dragon nuclear reactor	38
Drawing, automatic	396
Drives, some new brushless adjustable-speed	367
—, constant speed	655
Dynamometer, hydraulic	293

E

E.E.L.M., tested software from	457
E.I.J.C. (see also C.E.I.)	276
Eddy-current tester, non-ferrous	662
Effluent sampler, portable	533
Ekelund spread equation, analogue computer solution of	66
Electrohydraulic servo-valves (Survey 33)	73
Electrometers	52
—, capacitor	52
—, vibrating-reed	469
Elliott-Automation Computers	395
Emissivity measuring unit	351
Encoders, binary angle	472
—, shaft	172, 473
Endomicroscope	296
Endoscopes	296
English Electric Automation formed	337
Equations, new methods for numerical solution (Data sheet 33)	75
Evaluation, what they say about instrument	35
Experiments in computer control, a pilot plant for	129

F

Fault finding, automatic aids to	164
Feedback systems, compensation of hysteresis effects in	202
Ferrite tester, automatic	348
Fibre optic sensors	294
Filter, air	602
—, fluid	411
Filter/phase shifter	657
Filter trolley, hydraulic	602
Finite delay, state-space approach to the stability of continuous systems with	554
Flaw detector	349
Flow computer	530
Flow control valves, selection and sizing of liquid	558
Flowmeters	530
—, liquid	603, 656
—, rotary	530
—, thermal micro	471
—, transmitters	410
—, variable-area	530, 598
Flow transmitters, turbine	236
Fluid amplifier	340
—, control technique using a spring	351
—, jet elements low-pressure	542
—, logic, commercial	480
—, logic conference at Cranfield	588
—, systems, developments in	574
—, systems, test sets	412
Food processing, animal	281
Force transducer	598
Force-current transducer, novel	624
Frequency meter	51
Frequency response, eliminating drift in	99

G

G.E.C. International Systems Control	394
G.P.O. Goonhilly Station	278
Gas analyser, residual	51
Gas and liquid density gauges (Survey 32)	26
Gas grid, natural	276
Gas pressures, airborne transducers for measuring low	33
—, lasers for measurement of	32
Gaussmeter	51
Gearheads	295
Gear trains	528
Gemini, guidance computing for	269
Generator	292, 468, 469, 474, 601
—, pneumatic function	527
Glands, stainless-steel	597
Glossary of terms used in automatic control and regulating systems	327
Goonhilly, G.P.O. Station	278
Gravity gradient symposium	517
Guidance computing for Gemini	269
Gyroscope design	217

H

Hall-effect kit	103
Hardness tester	52
—, standardizing	467
Hatfield, wind-tunnel at	584
Hole detector, non-contacting	349
Horological industry, automation of	418
Horsepower meter	656
Hydraulic cylinder, low-pressure	526
Hydrogen flame detector	240
Hydrometer, electrical	293
Hygrometers (Survey 34)	371
Hysteresis effects in feedback systems, compensation of	202

I

I.B.M. in Germany	462
I.C.T.'s r. & d. laboratories at Stevenage	456
I.E.E., colloquium on critical path analysis	336
—, Control and Automation Division	583

Ideas applied

Airborne transducers for measuring low gas pressures	33
Airflow direction, cylindrical probe for sensing high-speed	82
Bell bearings, optical inspection	82
Hydraulic fluids, sampling of high-pressure	81
Lasers for measurement of gas pressure	32
Torque tester for f.h.p. rotating machines, wide-range	81
Ifac	623
—, Stavanger conference	483, 564, 632
—, symposium on self-adaptive control systems	591
—, Tokyo symposium	549
Ifip's biggest meeting	436
Imeko	458
Indicator, digital	104
Information theory, cybernetics, control and	428
Inspection equipment, automatic	50
Inspection system, optical	531
Instrument evaluation, what they say about	35
Integrator, chemical time-	118
Interdata exhibition	436
Interkama, preview	534
Internal combustion engines, optimizing control for	98
Invariant control systems, synthesis of	226
Iterative problem-solving by analogue computer	224

K

Kopp Variators, remote control	599
--------------------------------	-----

L

Labelling machine	354
Laboratory, mobile air	603
Laser calibration of precision scales	593
—, measurement, French	396
Laundering, continuous process machines	512

Leading articles

Approaches to the new years	3
Data, data, everywhere	121
Getting through to management	243
How to say you're best without really boasting	357
Sticks and carrots are for donkeys	57
The place and substance of control system engineering	184
Towards computer-integrated systems	300
Leak detector	598

Letters to the editor, Writers of

Anon. ('I.Mech.E.')	245
Barker, R. H.	124
Biswas, N. N.	185
Bowley, Alan H.	59
Bugden, A. R. (Miss)	482
Cemach, H. P.	246
Chidambara, M. R.	607
Clausen, Hugh	5, 301, 544
Coles, H. E.	606
Cowell, P. A.	359
Davies, W. D. T.	482
Dobson, K. G.	417
Doran, R. L. Lucien	301
Evans, P. R.	606
Feaver, M. J.	5
Foster, David	124, 186
Fowles, A. J. and J. E. P. Miles	483
Gibson, E.	246
Gosling, W.	123
Harlow, Walter F. (see Mason)	
Herrock, A. M.	544
Horwood, H.	301, 360
de Jong, J. J.	664
Lakeman, Enid	186, 482
Lambert, L. B.	544
McGee, L.	123
Mason, Frank and Walter F. Harlow	301
Meredith, R.	59, 185
Miles, J. E. P. (see Fowles)	
Morgan, K. L.	482
Morley, R. A.	245, 301
Nicoll, J. H.	246
Niederlinski, Antoni	360
Redding, R. J.	664
Semler, E. G.	5, 124
Smith, N. N. J.	606
Striker, György	186
Thomas, P. A. V.	416
Level detector	473

[illegible]

258
274
583
590

323
379
514
603
45
346

477
591
172
349
115
528
599
103
528
295
673
600
425
175

687
116
222
274
459
173
103
104
467

558
655
654
603
236
694
408
349

632
45
269
603
654
533

497
83
388

425

626
52

626
522
328
584

328
335
581
407
471
530
404
471
174
235
472
346
296
349
530

26
73
371
662
668
42
408
461
99
600
600
549

551
295

achometers	407, 472
Tacho-ratiometers	472
Tape converter	659
— punch	474
— reader	659, 660
— recorder, multi-track head	113
— transport, digital	113, 659
Teaching logic	354
— machine	353
— unit	354
Teaching as a control-engineering process	6, 69, 153, 211
Telemetry unit	175, 652
Temperature, compensator, ambient	596
— controllers	114
— gauge	173
— indicator	102
Temperature-measuring device, high-precision	168
Tensile testing equipment	467
Tension and compression testing instrument	52
Tension control, reeling	117
Test chambers	610, 611, 662
Test set, multirange	468
Tester and sorter, diode	531
Tester, Megger	52
Testing machine, servo-controlled	531
Textile tracer technique for size	348
Thermistors	102, 103
Thermocouple	294, 405
— assembly, multi-point	597
— meter	173
— range expansion unit	472
Thermometer	102, 173, 406, 472, 596, 597
Thermostat, automatic reset	471
Third-order control systems, generalized	198
— root-loci	198
Three-time-constant systems, a simple criterion for limiting gain in (Data Sheet 36)	621
Thyristors, uses of	694
Ticket inspector	394
Time code-generators	466
Time-counter	528
Time-delays	176, 177
Time-division circuit	112
Time-of-flight clock with digital readout	314
Timer	177, 353, 465, 466, 528, 600, 661
Tires, continuous testing of motor-vehicle	165
Tobacco distribution, computer control of	283
Tokyo symposium, Ifac	549
Totalizers, differential pressure	106
Traffic, co-ordinating	522
— control scheme for Munich	164
— control, West London	643
— control by radio	644
— problem, solving the urban	452
Train control, automatic	478
Transfer function of a third-order system	267
Transfer function analyser, feedback	676
Transfer functions from Nichols plots, how to find	375
Transient power flow in servo-mechanisms	12
Transistors, f.e.	348
— leakage tester	466
— silicon planar	347
— tester, automatic	348
Trawslynnydd, control at	159
Turbo-alternators, steam symposium	651
Tutor, analogue	103
Typesetting, computer	163
U	
U.K.A.C. convention on advances in automatic control	322
U.K.A.E.A., annual report	586
Unimate industrial robot	516
Uniselector, reed	659
V	
Vacuum-forming system	602
Vacuum gauge and switch	239
Valve, actuator, electrolytic	409
— air	527
— change-over	106
— delay	602
— hydraulic	105, 410
— piloted	106
— pneumatic	239, 410
— positioner for pneumatic	603
— pressure-operated	527
— pressure-reducing	526
— push-button	527
— relief	602
— seal	105, 237
— selection and sizing of liquid flow control	558
— spray gun mixing	528
— switch	105, 106
Variable-area meters	236
Viewpoint	
A modern industry keeps ahead by C. T. Meiling	184
A shameful technical snobbery by D. C. Nutting	358
Automatic control and the mechanical engineer by R. Hadekel	300
Automation—there is no other way by Michael Milne-Watson	605
Build the world's leading machine-tool industry by Ralph Gabriel	244

Control application—theory or practice?	4
by R. G. Kent	4
From batchwise to continuous education by Professor Sir Willis Jackson	543
Good judgement in automation by J. J. de Jong	481
International development of automatic control by R. M. J. Withers	122
New wine in old bottles by Sir Thomas Spencer	663
The control engineer holds the key by Captain C. H. S. Wise	58
The great god waste by L. B. Lambert	415
Voltage standard	292, 600
Voltmeters	60, 293, 601
—, digital	51, 52, 291, 467, 468, 601

W	
Water, detection of	405
West Gorton, I.C.T. computer manufacture	650
Winfrith Heath, Dragon nuclear reactor	38
Wiring diagrams, computer program produces	573
Wolvercote paper mill	458
X	
X-ray system, flash	50
Z	
Zeners, high-voltage	601

AUTHOR INDEX

A.E.E. Review of Handbook of applied instrumentation edited by D. M. Considine and S. D. Ross	49
—, Review of British instruments directory and data handbook	414
—, Review of Eurolec 1965 pocket guide to the electronics and instruments industry in the U.K.	697
Al-Shaikh, A. (see Soliman)	
Andriess, R. D. New design criterion for small split-field servo-motors	425
Azar, Y. Review of Theory of sampled-data control systems by David P. Lindorff	476
—, Review of Discrete-time systems by Herbert Freeman	577
Baker, L. R. Optical instrumentation in process control	545, 617
Barker, H. A. System engineering for control system design, Ifac's Tokyo symposium	549
Barr, I. A. Review of B.S. 3792:1964 Recommendations for the installation of automatic liquid level and temperature measuring instruments on storage tanks	95
Beechey, M. A. and R. F. E. Crump Instrumentation and control of modern boiler-turbine units in C.E.G.B. power stations	361, 442, 500, 570, 690
Bell, D. A. Cybernetics, control and information theory	428
—, Review of Photoelectric materials and devices edited by Simon Larach	697
—, Review of Automatic railway convention, 1964 I. Mech.E.	697
Benghiat, Ralph A new direct digital controller	133
Bidgood, R. E. (see Charley)	
Blackman, P. F. Review of A non-feedback amplifier system yielding high gain stability by M. O. Deighton	241
—, Review of Excitation control by G. M. Ulanov	242
Blake, N. B. and J. M. Reeve The Overseer system	310
Blenkinsopp, M. T. Large centrifugal compressor's run-up characteristics rescued	488
Braun, H. M. Review of Dictionary of data processing by L. Trollmann and A. Wittmann	120
—, Review of Automatic and remote control: Vol. 1—Theory; Vol. 2—Applications and components edited by Victor Broida, Derek H. Barlow and Otto Schäfer	356
Brickmen, Arthur D. (see Shearer)	
Brown, G. Selection and sizing of liquid flow control valves by normalized working characteristics (Data sheet 35)	558
Bunt, John P. Elliott 920 control computer	83
Camerer Cuss T. P. (see Evans)	
Carron, Sir William Review of Management and its people	638
Carter, R. J. Control of continuous distillation columns	21
Charley, C. J. Review of Fluid jet amplifiers by R. S. Neve	638
— and R. E. Bidgood Ball-valve switching controls a machine tool	150
Clarke, S. L. H. An introduction to direct digital control	127
—, Computers, round-table conference. How much less are computers doing than they could?	141
—, Review of The Flic conversion codes by J. C. Basher	696
—, Review of The measurement of property, plant and equipment in financial statements Harvard Business School Accounting Round Table	182

Cocks, P. Micro-miniaturization in control equipment and computers	815
Cooper, B. J. (see Tyler)	
Cotter, J. E. Computer control of production allocation for parallel process equipment	379
Cox, S. W. R. Automation in agriculture	247
Crump, R. F. E. (see Beechey)	
Davis, P. G. Sampled-data control example	613, 679
Davison, L. Analogue computer solution of the Ekelund spread equation	66
Demczynski, S. Review of Project management and control: Volume II: Applied operational planning by R. L. Martino	182
Dijkshoorn, Frans, Jurij Korobov and Lucas Pun	
Look at the Continent	99
Donkin, G. Computers, round-table conference. How much less are computers doing than they could?	141
Doucs, J. L. and Z. D. Yavuz A novel force-current transducer	624
Dravid, V. N. An appraisal of servo-system analytical method	432, 506, 567, 629, 667
Dwyer, B. A feedback transfer function analyser	676
Eatwell, R. F. Review of Some fundamentals of information retrieval by John R. Sharp	297
Ellis, J. K. and G. W. T. White, Introduction to modal analysis and control	193, 282, 317
Etzweiler, George A. (see Shearer)	
Evans, David S. and T. P. Camerer Cuss Time-of-flight clock with digital readout	314
Finkelstein, L. Instrumentation and control in coal mining	16
—, Review of Automatic control measuring and regulating devices by I. V. Butusov, translation edited by R. C. Glass	413
—, Review of Electronic amplifiers for automatic compensators by D. Ye. Polonnikov	241
—, Review of Holonomic automatic systems by M. B. Ignat'yev	120
—, Review of I.E.C. publication 117. Part 4: Recommended graphical symbols for measuring instruments and electric clocks	120
—, Review of The treatment of linear multivariable regulation systems by means of determinants on the basis of the generalized block diagram by Rudolf Starkermann	119
Fischbacher, R. E. Review of Engineering research development and design by Hugh Clausen	414
Flegg, H. Graham Review of Integration of equations of parabolic type by the method of nets by V. K. Saul'yev translated by G. J. Tee	179
Foster, David Review of Engineering reliability and long life design by R. P. Haviland	96
—, Review of Instruments electronics automation year book and buyers guide edited by T. G. Williams	241
—, Review of Managing with e.d.p. by M. Valliant Higginson	698
—, Review of The first twenty years' operational research by R. H. Colcutt	578
Fowles, A. J. and J. E. P. Miles A pilot plant for experiments in computer control	129
French, D. Review of Valves for the control of fluids	96
Frewer, R. A. Review of Thermostatic control by V. C. Miles	578
Gabriel, Ralph Build the world's leading machine-tool industry	244
Gatland, H. B. Review of Direct coupled amplifiers using field effect transistors by E. P. Fowler	638
Gill, S. and R. J. A. Paul Ifip's biggest meeting held in New York backed by Interdata Exhibition	436
Girling, B. Review of A course on programming in Algol 60 by C. M. Reeves and M. Weels	119
—, Review of Computer programming and autcodes by D. G. Burnett-Hall, L.A.G. Dresel and P. A. Samet	119
—, Review of Numerical methods using Fortran by L. Dale Harris	241
—, Review of The Flic I conversion code by J. C. Basher	181
Goodman, L. Landon Review of Labour and automation. Bulletin No. 1, Automation: a discussion of research methods International Labour Office	241
Gosling, W. Review of Disciplines and techniques of systems control edited by John Paschon	180
Graf, M. (see Pigott)	
Green, W. L. Electrohydraulic servo-valves (Survey 33)	73
Greenland, K. M. Review of B.S. 1904:1964. Specification for industrial platinum resistance thermometer elements	120
—, Review of Thermocouples: their instrumentation, selection and use by B. F. Pilling	119
Griffin, A. W. J. (see Ramshaw)	
Hadekel, R. Automatic control and the mechanical engineer	300
Hall, C. D. Adaptive process optimizer	253

Hammond, P. H. Review of <i>An introduction to the mathematical formulation of self-organizing systems</i> by John Formby	180	Paul, R. J. A. Review of <i>Digital differential analysers</i> by A. V. Shileiko	49	—, Review of <i>Calibration of the Daphna coarse-control arms by means of the pulsed-neutron technique</i> by M. W. Rampling	697
Houghton, W. G. Review of <i>Instrumentation for process measurement and control</i> by Norman A. Anderson	414	—, Review of <i>Linear data-smoothing and prediction in theory and practice</i> by R. B. Blackman	577	—, Review of <i>Communication satellites</i> by G. E. Mueller and E. A. Spangler	95
Jackson, Professor Sir Willis. <i>From batchwise to continuous education</i>	543	—, Review of <i>Modern control theory</i> by Julius T. Tou	95	—, Review of <i>Design of an adiabatic control for a graphite channel oxidation rate experiment</i> by R. J. Moulton and E. Lyall	49
Jason, The Money circuit	30, 78	— (see also Gill)		—, Review of <i>Microwave solid-state engineering</i> edited by L. S. Nergaard and M. Glicksman	119
de Jong, J. J. <i>Good judgement in automation</i>	481	Pepper, E. J. <i>Some new brushless adjustable-speed drives</i>	367	—, Review of <i>The Goonhilly project</i> by F. J. D. Taylor	298
Kent, R. G. <i>Control application—theory or practice?</i>	4	Percival, N. P. Review of <i>Abnormal loads on power systems (I.E.E. conference report No. 8)</i>	119	—, Review of <i>A method of gain sweeping for single channel pulse-amplitude analysis</i> by D. Williams	696
Korobov, Jurij, G. <i>Piguet and Lucas Pun Look at the Continent</i> 167, 228, 283, 390, 481		Pigott, P. M. and M. Graf <i>Automatically controlled billet-handling crane</i>	187	Thompson, A. <i>Computers, round-table conference, How much less are computers doing than they could?</i>	141
Korobov, Jurij (see also Dijkshoorn)		— and D. J. Standley <i>Development of a crane communications system for control applications</i>	608, 683	Thompson, M. C. Review of <i>Marketing urban mass transit</i> by Lewis M. Schneider	414
Lambert, L. B. <i>The great god waste</i>	415	Piguet, G. and Lucas Pun <i>Look at the Continent</i>	342, 514	Towill, D. R. <i>Performance advantages of certain non-linear servo-mechanisms</i>	673
Lavelle, P. M. Review of <i>Basic electronic Circuits, Part 2</i> by a training investigation team, R.E.M.E.	96	Piguet, G. (see also Korobov)		Towle, L. C. Review of <i>Second report of the Committee on common standards for electronic parts</i>	638
—, Review of <i>High-intensity ultrasonics—industrial applications</i> by Basil Brown and John E. Goodman	356	Prabhakar, Alladi <i>Transient power flow in servo-mechanisms</i>	12	—, Review of <i>The transistor</i> by Joachim Dosse	298
Lenoir, R. <i>Time marches on—towards automation</i>	418	Pucknell, D. A. <i>Use of logical circuit elements for binary arithmetic</i>	302	Tustin, A. Review of <i>A guide to advanced electrical engineering</i> by Ruth V. Buckley	95
Leslie, W. H. P. Review of <i>An introduction to numerical control of machine tools</i> by O. S. Puckle and J. R. Arrowsmith	180	Pun, Lucas (see Dijkshoorn, Piguet, Korobov)		Tyler, R. D. and B. J. Cooper <i>A simple criterion for limiting gain in three-time-constant systems (Data sheet 36)</i>	821
—, Review of <i>Pulse technology</i> by W. A. Stanton	96	Ramshaw, R. S., A. W. J. Griffin and K. Lloyd <i>A brushless adjustable-speed motor for extreme environments</i>	669	Walker, B. S. A control engineer's way in to logic	384, 446
Levine, M. D. Review of <i>Sensitivity analysis of dynamic systems</i> by Rajko Tomovic, translated by David Tornquist	95	Ransom, D. T. Review of <i>Microwave circuits</i> by Jerome L. Altman	476	—, Review of <i>Digital computers in action</i> by A. D. Booth	355
Lloyd, K. (see Ramshaw)		—, Review of <i>Principles of electron tubes</i> by James W. Gewartowski and Hugh A. Watson	578	—, Review of <i>Switching theory, Volume 1: Combinational circuits</i> by Raymond E. Miller	578
Longley, D. Review of <i>Introductory engineering statistics</i> by Irwin Guttman and Samuel S. Wilks	697	Ream, N. Review of <i>Matrix analysis for electrical engineers</i> by Alexander von Weiss translated by Egon Brenner	96	Walker, R. W. (see Longley)	
—, and R. W. Walker <i>Analogue computer study of continuous-time Markov processes</i>	205	—, Review of <i>The approximation of functions. Volume 1—Linear theory</i> by John R. Rice	413	Watt, I. M. Review of <i>Techniques of electron microscopy, diffraction and micro-probe analysis A.S.T.M.</i>	696
Lord, R. N. Review of <i>Military information systems</i> edited by Edward Bennett, James Degan, and Joseph Spiegel	96	Redding, R. J. Review of <i>Reliability engineering for electronic systems</i> edited by Richard M. Myers, Kam L. Wong and H. M. Gordy	120	West, John C. Review of <i>Non-linear oscillations in physical systems</i> by Chihiro Hayashi	179
Lovering, W. F. <i>Two test frequencies give the transfer function of a third-order system (Data sheet 34)</i>	267	Reeve, J. M. (see Blake)		—, Review of <i>U.K.A.C. Record No. 4, February, 1965. Education and training needs for progress in automation and technology</i>	413
Lucas, T. A. Review of <i>A gas blender for minor components at concentrations between 10 and 1000 v.p.m.</i>	476	Reid, Karl N., Jr. (see Shearer)		West, R. G. Review of <i>B.S. 1042: Part 1: 1964. Methods for the measurement of fluid flow in pipes. Part 1 Orifice plates, nozzles and Venturi tubes</i>	96
Lucas, T. A. (see also Parks)		Roberts, D. H. Review of <i>Principles of tunnel diode circuits</i> by Woo F. Chow	49	—, Review of <i>B.S. 1042: Part 3: 1965. Methods for the measurement of fluid flow in pipes. Part 3. Guide to the effects of departure from the methods in Part 1</i>	242
MacLaren, A. P. <i>Automatic control in the peaceful use of space, Ifac Stavanger conference</i>	483, 564, 632	Roberts, J. A. <i>Computers, round-table conference, How much less are computers doing than they could?</i>	141	—, Review of <i>B.S. 3680 Part 3: 1964. Methods of measurement of liquid flow in open channels. Part 3. Velocity area methods</i>	242
—, Review of <i>Inertial guidance sensors</i> by J. M. Slater	297	Rosenbrock, H. <i>Process control and computers</i>	125	Westcott, J. H. <i>Computers, round-table conference, How much less are computers doing than they could?</i>	141
—, Review of <i>Space vehicle electronics</i> by David Bruce Newman	180	—, Review of <i>A binary cross-correlation analyser</i> by J. F. Hogg	119	—, Review of <i>Proposed specification of a computing system using remote control: HUW by I. C. Pyle</i>	696
Mahalanabis, A. K. and A. K. Nath <i>The compensation of hysteresis effects in feedback systems</i>	202	—, Review of <i>Proceedings of the discussion on stability of systems I.Mech.E.</i>	696	White, G. W. T. Review of <i>On the relationship between the transfer functions and the characteristic modes of a set of ordinary first order differential equations</i> by C. B. Guppy	179
Marson, G. B. <i>Output and standby equipment for direct digital control</i>	137	—, Review of <i>Techniques of process control</i> by Page S. Buckley	298	White, G. W. T. (see also Ellis)	
Martin, S. <i>Hygrometers (Survey 34)</i>	371	Royce, N. J. Review of <i>Mathematical models and marketing management</i> by Robert D. Buzzell	182	Wilkes, M. V. Review of <i>A lumped constant delay line with negligible overshoot</i> by R. Martin	476
Mayne, D. Q. Review of <i>Progress in control engineering, Vol. 2</i> edited by R. H. Macmillan, T. J. Higgins and P. Naslin	49	—, Review of <i>Models for decision</i> edited by C. M. Berners-Lee	577	—, Review of <i>Circuits logiques et automatismes a sequences</i> by P. Naslin	355
Mayo, C. G. Review of <i>Corporate finance and fixed investment</i> by W. H. Locke Anderson	181	Royle, J. K. Review of <i>Problems of pump head measurement (N.E.L. Report No. 113)</i> by R. A. Nixon	119	—, Review of <i>Computer-oriented mathematics</i> by Ladis D. Kovach	49
—, Review of <i>Investment appraisal</i> by National Economic Development Council	182	Sargent, R. W. H. <i>Computers round-table conference, How much less are computers doing than they could?</i>	141	—, Review of <i>Introduction to Fortran</i> by S. C. Plumb	181
Meadows, N. G. <i>Generalized root loci for third-order control systems</i>	198, 259	Semler, E. G. Review of <i>How to win the business battle</i> by Eric Webster	96	—, Review of <i>Numerical methods and Fortran programming</i> by Daniel D. McCracken and William S. Dorn	181
—, <i>How to find transfer functions from Nichols plots</i>	375	Shahbenderian, A. P. Review of <i>Chisa 1962. Main lectures of First International Congress on Chemical Engineering, Equipment Design and Automation</i>	241	—, Review of <i>Programming in Algol</i>	181
—, Review of <i>Electrical correcting elements in automatic control and regulation circuits</i> by G. K. Krug and Ye. K. Krug	577	Shearer, J. Loven and Arthur D. Brickman <i>Look at America</i> 47, 97, 224, 340, 459, 518		Williams, T. L. Review of <i>Units and standards of measurement employed at the National Physical Laboratory. II. Light: photometry colorimetry and radiometry</i>	95
—, Review of <i>Variational techniques in electromagnetism</i> by L. Cairo and T. Kahan	697	—, Etzweiler, George A. and Karl N. Reid, Jr. <i>Look at America</i>	573, 636, 694	Wise, Captain C. H. S. <i>The control engineer holds the key</i>	58
Melling, C. T. <i>A modern industry keeps ahead</i>	184	Shortland, M. G. <i>The world's steelmakers talk automation</i>	328	Withers, R. M. J. <i>International development of automatic control</i>	122
Meredith, R. <i>Computers, round-table conference, How much less are computers doing than they could?</i>	141	Soliman, J. I. and A. Al-Shaikh <i>A state-space approach to the stability of continuous systems with finite delay</i>	554, 626	Woffendale, E. D.C. <i>motor with s.c.r. commutator and synchronous speed control</i>	497
—, Review of <i>Long range planning in American industry</i> by Brian W. Scott	697	Somayajulu, B. S. K. R. <i>New methods for plotting phase-plane trajectories</i>	60	Woodford, W. F. S. Review of <i>Management services: the way ahead</i> by T. B. Ward	242
—, Review of <i>U.K.A.C. Record No. 5, February 1965, investigation concerning technicians associated with automated processes</i>	414	Spencer, Sir Thomas <i>New wine in old bottles</i>	683	Yavuz, D. (see Douce)	
Miles, J. E. P. (see Fowles)		Standley, D. J. (see Pigott)		Young, J. F. <i>Variable-polarity logic</i>	493
Milne-Watson, Michael <i>Automation—there is no other way</i>	605	Storey, C. Review of <i>Annual review in automatic programming, vol. 4</i> edited by Richard Goodman	119	—, Review of <i>Tables for the binary encoding of angles</i> by P. A. Newson	698
Muller, E. Review of <i>Careers with Instruments S.I.T.</i>	698	—, Review of <i>Discount D. An improved version of the computer program for economic assessment of nuclear power systems</i> by G. Black	476	Yoxall, L. S. Review of <i>The age of automation</i> by Sir Leon Bagrit	241
Nath, A. K. (see Mahalanabis)		Taylor, Denis. Review of <i>Basic Theory of space communications</i> by Frederick J. Tischer	577		
Newport, C. B. Review of <i>Hazard and race phenomena in switching circuits (Ifac)</i>	298	—, Review of <i>Content-addressable stores</i> by E. H. Cooke-Yarborough	49		
Noe, E. H. <i>Gas and liquid density gauges (Survey 32)</i>	26	—, Review of <i>Demon. A computer program which solves certain time-dependent equations</i> by C. W. J. McCallien	696		
Nutting, D. C. <i>A shameful technical snobbery</i>	358	—, Review of <i>Associative storage by adaptation of a standard pulse analyser</i> by E. H. Cooke-Yarborough and I. N. Hooton	49		
Parks, P. C. Review of <i>Engineering systems analysis</i> by A. G. J. MacFertlane	180				
— and T. A. Lucas <i>Report on U.K.A.C. convention on advances in automatic control</i>	322				
Park, Gordon <i>Teaching as a control-engineering process</i>	6, 69, 153, 211				

697
95
49
119
298
696
141
414
673
638
298
95
621
446
355
578
696
179
413
96
242
242
141
696
179
476
355
49
181
181
181
95
58
122
497
242
493
698
241